The claims are not amended, but a clean copy is provided for reference.

1. (Original) A particle mass spectrometer, comprising:

a supersonic flow expansion nozzle having an inlet and an outlet;

a source of a gas having particles entrained therein, wherein the source is in gas-flow communication with the inlet of the expansion nozzle;

a vacuum chamber in gas-flow communication with the outlet of the expansion nozzle, wherein the vacuum chamber has a sufficient vacuum that a gas flow through the expansion nozzle is supersonic; and

a microphone having an active element and an output signal responsive to a movement of the active element, wherein the active element is disposed within the vacuum chamber and is positioned so that particles that flow from the outlet of the expansion nozzle impact upon the active element.

2. (Original) The particle mass spectrometer of claim 1, wherein the expansion nozzle is a converging-diverging expansion nozzle.

3. (Original) The particle mass spectrometer of claim 1, wherein the source of the gas comprises

a source of particles having a mass of from about 10^6-10^{10} Daltons.

4. (Original) The particle mass spectrometer of claim 1, wherein the source of the gas comprises

a source of virus particles.

5. (Original) The particle mass spectrometer of claim 1, wherein the vacuum chamber has a pressure of from about 10^{-3} Torr to about 10^{-1} Torr.

6. (Original) The particle mass spectrometer of claim 1, wherein the active

element of the microphone comprises a piece of a piezoelectric material.

7. (Original) The particle mass spectrometer of claim 1, wherein the active element of the microphone comprises a flexible diaphragm.

8. (Original) The particle mass spectrometer of claim 1, further including

a set of electrostatic deflection plates disposed such that particles that flow from the outlet of the expansion nozzle toward the microphone must pass between the deflection plates.

9. (Original) The particle mass spectrometer of claim 1, wherein the microphone comprises

an array of microphones.

10. (Original) The particle mass spectrometer of claim 1, further including

a data processor that receives the output signal and associates the output signal with particle types.

11. (Original) A particle mass spectrometer, comprising:

a supersonic flow, converging/diverging expansion nozzle having an inlet and an outlet;

a source of a gas having particles entrained therein, wherein the source is in gas-flow communication with the inlet of the expansion nozzle;

a vacuum chamber in gas-flow communication with the outlet of the expansion nozzle, wherein the vacuum chamber has a sufficient vacuum that a gas flow through the expansion nozzle is supersonic;

an array of microphones, each microphone having an active element and an output signal responsive to a movement of the active element, wherein each active element is disposed within the vacuum chamber and positioned so that particles that flow from the outlet of the expansion nozzle impact upon the active element; and a set of electrostatic deflection plates disposed such that particles that flow from the outlet of the expansion nozzle toward the array of microphones must pass between the deflection plates.

12. (Original) The particle mass spectrometer of claim 11, wherein the source of the gas comprises

a source of particles having a mass of from about 10^6-10^{10} Daltons.

13. (Original) The particle mass spectrometer of claim 11, wherein the source of the gas comprises

a source of virus particles.

14. (Original) The particle mass spectrometer of claim 11, wherein the vacuum chamber has a pressure of from about 10^{-3} Torr to about 10^{-1} Torr.

15. (Original) A method for determining a mass of particles, comprising the steps of

entraining the particles in a flow of gas;

passing the flow of gas with the particles entrained therein through a supersonic-flow expansion nozzle into a vacuum;

impacting the flow of gas with the particles entrained therein on an active element of a microphone that is maintained within the vacuum, after the flow of gas with the particles entrained therein leaves the expansion nozzle; and

associating an output signal of the microphone with the masses of the particles.

16. (Original) The method of claim 15, wherein the step of entraining includes the step of

providing particles having a mass of from about 10^6-10^{10} Daltons.

17. (Original) The method of claim 15, wherein the step of entraining

includes the step of

providing a source of virus particles.

18. (Original) The method of claim 15, wherein the step of passing includes the step of

providing the vacuum with a pressure of from about 10^{-3} Torr to about 10^{-1} Torr.

19. (Original) The method of claim 15, wherein the method includes an additional step of

electrostatically deflecting the particles entrained in the flow of gas leaving the supersonic flow expansion nozzle.

20. (Original) The method of claim 15, wherein the step of impacting includes the step of

providing an array of microphones, and

wherein the method includes an additional step of

electrostatically deflecting the particles entrained in the flow of gas leaving the supersonic flow expansion nozzle so that the particles impact one of the microphones in the array of microphones.